Conservative treatment of dentigerous cyst associated with primary teeth

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Dentigerous cyst is the most common odontogenic cyst. It is characterized by a unilocular radiolucent lesion that encloses permanent tooth buds or, under certain circumstances, displaced tooth buds. Buccal bony expansion is the most common clinical feature. Several treatment modalities have been mentioned in the literature for management of dentigerous cysts. The purpose of this article was to report an extensive right mandibular dentigerous cyst on a 10-year-old boy. Marsupialization was chosen to preserve the permanent tooth bud and a denturelike obturator was then provided for space maintenance and masticatory function. Long-term follow-up revealed good healing of the bony lesion with converted tooth eruption. (Oral Surg Oral Med Oral Pathol Oral Radiol Endod 2011;112:e5-e7)

Dentigerous cyst is the most common odontogenic cyst. It is associated with the crown of an unerupted tooth. The cyst cavity is lined with reduced enamel epithelium derived from the tooth-forming organ.  The cyst is a well-defined radiolucency lesion with fluid accumulation between the epithelium and tooth crown. The clinical features are cortical bone expansion, adjacent permanent tooth bud displacement, and root dilacerations.

There are 2 types of dentigerous cyst. The developmental type is usually found in the late second and third decades. It occurs in mature teeth generally without inflammation. The inflammatory type is found in the first and early second decades. It usually occurs in a nonvital immature deciduous tooth or other source spreading to involve the tooth follicle.

CASE REPORT

A 10-year-old healthy boy came to the Pediatric Dentistry Department at Chang Gung Memorial Hospital for a dental check-up. Oral examination showed a buccal bony expansion confirmed on the occlusal radiograph over the right primary mandibular molar region (Fig. 1). The panoramic and periapical radiographs revealed a unilocular radiolucency under the primary right mandibular canine and molar area (Fig. 2), and the succedaneous tooth germs were displaced compared with their counterparts on the other side.

The primary right mandibular molars were extracted followed by tissue biopsy and marsupialization under local anesthesia at the Oral Surgery Department. 7 Histologically, the epithelial lining with hyperplastic rete ridges was thick. The collagenized fibrous cyst capsule showed a diffuse chronic inflammatory cellular infiltration (Fig. 3). According to the histologic diagnosis, the bony lesion was a dentigerous cyst. The marsupialized wound was sutured and packed with iodoform gauze for a week. A provisional resin-made obturator was applied to cover the cystic opening and was replaced by a removable partial denture 10 days later. The patient was instructed to clean the wound with distilled water from a syringe after each meal.

Regular recall visits were scheduled for the removable partial denture adjustment every other month. Panoramic and periapical radiographs showed the decreasing bony

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defect and regenerating bone around the crowns of the cuspid and premolars. The removable partial denture was removed for the erupting right mandibular first premolar about 11 months later. No recurrence was found in the final panoramic radiograph (Fig. 4). The right mandibular canine and premolars were aligned in an acceptable position 32 months later (Fig. 5).

DISCUSSION

Dentigerous cyst is the most common type of developmental odontogenic cyst. It can cause cortical expansion and result in facial asymmetry. A unilocular well-defined radiolucency lesion without symptoms is characterized on radiographic examinations. It must be differentially diagnosed among the radicular cyst, odontogenic keratocyst, ameloblastoma, odontogenic fibromyxoma, and odontoma.

Several treatment options include complete enucleation and marsupialization. If the cyst is associated with a supernumerary tooth, complete enucleation of the cyst along with extraction of the tooth may be the first choice. If preservation of the displaced teeth is desirable, and in a young patient where the lesion is isolated, marsupialization is a rather conservative treatment option. Marsupialization is the conversion of a cyst into a pouch by suturing the cyst lining to the oral mucosa. This method has fewer complications than enucleation regarding the preservation of important anatomical structures and developing permanent tooth germs.

The disadvantage of marsupialization is the pathologic tissue left in situ. Ameloblastoma, squamous cell carcinoma, or intraosseous mucoepidermoid carcinoma may develop from the cells in the lining of a dentigerous cyst; however, recurrence of dentigerous cyst is seldom found, especially after complete removal of cyst or tooth eruption. In our case, we chose conservative treatment based on the age of the patient and the strategic value of the associated teeth. In every bi-monthly follow-up appointment, the denture was ad-

Fig. 2. Panoramic radiograph showed a large radiolucent lesion with displacement of the tooth buds on canine and premolars in the right mandible.

Fig. 3. Histopathological findings showed fibrous capsule with chronic inflammatory infiltration. (Hematoxylin and eosin stain, original magnification ×100.)

Fig. 4. Follow-up panoramic radiograph showed no recurrence of dentigerous cyst after 32 months.

Fig. 5. Follow-up intraoral photograph showed right mandibular canine and premolars were in acceptable alignment after 32 months.
justed accordingly based on healing of the cyst and bone growth. The developing tooth germs emerged at proper position after 11 months. In every recall examination, we needed to monitor the tooth alignment and the continuous root development for the potential need of orthodontic intervention.

Children have greater capacity to regenerate destructed bone. Therefore, conservative treatment for spontaneous eruption of these teeth is carried out well. Teeth with open apices have more eruptive potential and fewer associated pathologic lesions within the dentigerous cyst. After marsupialization, iodoform gauze packing or an obturator should be inserted into the cystic lesion opening to prevent spontaneous closure. The advantages of an obturator are (1) to allow cystic lesion size decrease, (2) to prevent food accumulation into the cystic cavity, and (3) to avoid damage to permanent teeth. The removable denture is better than an obturator because of its effect on space maintenance and restoration of masticatory function. In the follow-up appointments, the right mandibular canine and premolars erupted into proper position and new bony regeneration was found in the panoramic and periapical radiographs. Regular follow-up is still necessary to evaluate the need for orthodontic treatment.

CONCLUSION

According to cystic size, age of the patient, proximity to vital structures, and the strategic value of the impacted teeth, conservative treatment is a favorable treatment modality for extensive dentigerous cyst.

REFERENCES